THE HEALTH AND SANITATION CONDITIONS OF THE ONE ROOM RURAL ELEMENTARY SCHOOLS OF IOWA

BY

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CHAPTER I

INTRODUCTION

Rural schools have long been a point of discussion with reference to their educational offerings. An important aspect of the curriculum of one room elementary schools is the health and sanitary conditions. The physical factors of these rural schools, namely, ventilation, heating, lighting, water supply, and safety on the playground, play an important part in the total learning experience of the child. L. W. Irwin makes the following statement.

> The health and physical welfare of the school child is a primary objective of modern education. The school is responsible for the whole child. The acceptance of such a policy supports the present day emphasis upon the individual, rather than upon the subject matter alone. It implies, too, that education of each student is largely dependent upon the health which he possesses.[1]

Purpose of the Study

The purpose of this study was to determine whether or not the students of rural elementary schools of Iowa are receiving the benefits of the healthful environment to which they

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[1]L. W. Irwin, The Curriculum in Health and Physical Education (St. Louis: C. V. Mosby Co., 1944), p. 244.

are entitled. It is also the desire of this writer to determine if the state laws and the recommendations of noted authorities are being carried out. This study was not made to set up standards but rather to present the status, at the present time, of the health facilities available at a selected group of schools.

Adequate opportunities for health and sanitation experience designed to develop the physical, mental, and personality growth are a fundamental part of the pattern of the student life in the elementary school.

> Every child in the schools of the nation should have the utmost in health service, healthful school living, and in health instruction. The acceptance of this principle would mean that the service of physicians, nurses, dental hygienists, psychiatrists, psychologists, dietitians, specialized health teachers, and others would be involved. Since a majority of our schools are small and are located in small communities, it is obvious that the best in health education cannot be provided under existing conditions.[1]

The amount of teacher training in the field of health, sanitation, and physical education is of utmost importance. To insure the health and safety of the individual pupils it would seem that the rural teachers should be well trained in these fields.

A medical examination is recommended by many leaders in the field of education. This examination should be a yearly process with frequent visits by a county health nurse

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[1] Ibid., p. 243.

during the school year. To give a medical examination without a follow-up program is of very little benefit.

> For medical examinations to be valuable they must be followed by treatment and correction of the defects revealed and the school life of the individual pupil must be based on the results. They should be used, also, as a basis for the out-of-school life of the pupil.[1]

It is the hope of the writer that this study may be of help in ascertaining the present status of the health and sanitation conditions and also of aid in the future study and planning of the health program in the rural elementary schools. It must be remembered, however, that in this study no effort will be made to establish a set of standards for such a program. John Dewey once said:

> Boys and girls need to be instructed so that they can discriminate between the enjoyments that enrich and enlarge their lives and those which degrade and dissipate.[2]

Organization of Study

Chapter I deals with the introduction and the purpose of the study. Chapter II is a brief history and a review of the recommendations of school authorities on health and sanitation problems of the elementary schools. Chapter III is a presentation of the problems which face the people of rural

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[1] Ibid., p. 245.

[2] Anna May Jones, Leisure Time Education (New York: Harper and Bros., 1946), p. 169, quoting John Dewey.

elementary schools today. Chapter IV explains the procedure for collecting data. Chapter V is a presentation of the data found, and Chapter VI states the conclusions and recommendations.

CHAPTER II

A BRIEF HISTORY AND A REVIEW OF THE RECOMMENDATIONS OF SCHOOL AUTHORITIES ON THE HEALTH AND SANITATION OF RURAL ELEMENTARY SCHOOLS OF IOWA

Early history of health, sanitation, and physical education in the rural schools is not set down too clearly in the history of Iowa education. Consequently, an attempt will be made to record some of the more outstanding legislation by the state and also to give an account of the recommendations of noted persons interested in the development of better health, sanitation, and physical education for the rural elementary schools.

When the Iowa country was attached to the Territory of Michigan in 1834, for the purpose of a temporary government, the laws of the Territory were, of course, carried over into this new land west of the Mississippi. Through legislation of the Territory of Michigan, one may trace the influence of the New England school laws to those of Iowa.

The lack of records and literature during the period before 1900 makes it almost impossible to give a good picture of the events that took place in regard to health in rural

schools. Therefore, only the period from 1900 will be dealt with and the outstanding events will be recorded. A statement by Richard C. Barrett in the Iowa School Report of 1900-1901 is as follows:

> During the past two years considerable attention has been given to the question of medical inspection in public schools. While but little in a practical way has thus far been done, the discussion of the subject has been wholesome, and it is the belief of those at present most interested, that the agitation has tended to arouse and interest parents and boards of directors.
>
> The importance and necessity of having school rooms and buildings fumigated has also been kept quite prominently before school authorities. I can conceive of nothing that would result in greater good than the proper inspection of public schools and buildings in our cities, by competent medical authorities.[1]

The contents of this report by Mr. Barrett seems to indicate that the people in public office and the lay people as well had a keen knowledge and interest in the welfare of the state's children. It further indicates that not much has been done to better the conditions. However, the educators during the period of 1900-1920 had a general feeling that much had to be done to improve the health conditions of the schools of Iowa.

As early as 1901 much interest was injected into the idea of consolidation of the rural schools. Health of the children seemed to be the most important factor in the discus-

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[1] Iowa School Report of 1900-1901 (Des Moines, Iowa: Department of Public Instruction, 1901), p. 19.

sions. An advantage of consolidation was indicated by a large percent of county superintendents, as:

> The health of the children would be better guarded where they are conveyed from their homes to the school in comfortable vehicles than where they have to travel through mud or snow for a mile or so to the school, as they often do under the present conditions.[1]

The disadvantages of consolidation were listed as:

> The people object to the removal of the little schoolhouse from the neighborhood, since it furnishes in many places the only public meeting house. They say it will break up Sunday School, the literary society, and other neighborhood gatherings. There is a sentiment concerning the little schoolhouse that objects to its obliteration from rural life.
>
> That the children will suffer from having to carry cold lunches to the central school.
>
> That there will be greater danger of spreading contagious diseases where all the children in a township are brought together.[2]

It may be noted from school reports of the State Department of Education that one of the requirements of a would-be-teacher was that of taking an examination. This examination would have to be passed if she was to receive a state teaching certificate. A number of subject matter questions were given; however, no mention was made of health, sanitation, or physical education.

At this period many medical men of the state and also of the nation were becoming alarmed at the possibilities that might accrue because of lack of health instruction, the dis-

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[1] Ibid., p. 36. [2] Ibid., p. 38.

regard to health environment and health service in the schools.

> In recognition of the value of the work already accomplished in several leading cities of the United States in tracing out sources of infection among pupils of public schools, the American Health Association created a committee on school hygiene with the purpose of securing the presentation from year to year, of reports showing:
>
> 1. The progress made in the application of means designed for early detection of cases of communicable diseases among public school children.
>
> 2. For recording their physical development.
>
> 3. For improvement of sanitation conditions on school premises.[1]

In his report of 1905, Superintendent of Public Instruction of the State of Iowa, John Riggs, made the following statements about rural schools:

> This report is issued in the hope of awakening greater public interest in the rural schools to the end that country children may be gathered in better schoolhouses, trained by better teachers and have that training extended through a longer school year without the interruptions now so common in the frequent change of teachers.
>
> In a great majority of country schools the conditions are such that superior work is impossible. What are these conditions?
>
> 1. Small schools and irregular attendance.
>
> 2. Schoolhouses with meager equipment.
>
> 3. Teachers often inexperienced and of inadequate scholarship.

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[1] J. C. Shrader, "A Brief Report of the Committee on School Hygiene," Iowa School Report of 1905 (Des Moines, Iowa: State Department of Education, 1905), p. 446.

Construction of Schools:

1. Ventilation:

   Cold air box from opening in the foundation wall directly under the stove--covered with coarse wire and screens.

2. Outhouses:

   Located in rear of school ground and widely separated. The closets should be so constructed as to provide for the separation of pupils using them. The contents of the vault should be cleaned at least once a year and thoroughly disinfected.

3. Water supply:

   Every school building should be supplied with pure water. The well should be sunk on high ground and every possible precaution used to prevent contaminating matter of any kind reaching the water supply. The upper three feet should be brick set in cement, and the top securely covered.

4. Lighting:

   The school room should be lighted by windows placed in the rear and side walls. Such windows should contain glass surface of not less than one-fifth of the floor space of the room. The room should be of sufficient size to allow not less than 15 feet of floor space and not less than 180 feet of air space for each pupil.

5. Seating:

   Single desks should be used and in the one room country school five sizes are usually required.[1]

From this report one can see that even at that time much thought was given to the health of the student. In some cases these basic requirements were carried out, but in many

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[1]John Riggs, Iowa School Report of 1905 (Des Moines, Iowa: State Department of Education, 1905), p. 95.

cases this report was just so many words.

No apparent significant changes in health requirements were made in the period from 1905 to 1917 which is prior to the time the United States entered World War I. However, much was written and spoken in regard to the health conditions of the rural schools. With the declaration of war by the United States in 1917, the health and recreation movement was stimulated and challenged as never before.

The large number of rejections by the Armed Forces, due to physical disabilities of the Nation's youth brought about an awakening on the part of the American public. The people were beginning to realize the need for health, sanitation, and physical education programs within the schools. This, of course, included the elementary rural schools.

> At the request of the War Department, the playground and recreation association organized the War Camp Community Service which functioned in those communities near which military camps were located. Wholesome and varied recreation for soldiers, sailors, and civilians was sponsored and directed by the personnel of the War Camp Community Service. The recreational facilities of the entire country were mobilized for service during the war years. The Young Men's Christian Association and the Young Women's Christian Association working closely with the War Camp Community Service made possible a gigantic recreational program. The conduct of this program was largely in the hands of a personnel trained in physical education.[1]

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[1]Norma Schwendener, A History of Physical Education in the United States (New York: Barnes and Company, 1942), p. 139.

With the ending of World War I, the impetus given to the schools by the above-mentioned agencies gradually subsided and soon the school programs were just about where they had been prior to 1917. Little had been accomplished in regard to the waste disposal systems. The water systems remained about the same in most cases with little or no inspection by the state. Classrooms were not changed to fit the growing needs associated with increased enrollments. Playgrounds in many cases were bare with no new facilities to occupy the children. Barbed wire fencing enclosed many of the play yards making a dangerous condition. There are no records in the Iowa State Capitol building in regard to the amount of physical education that was to be taught. There were no required courses that a teacher must have had in physical education in order to teach in the rural schools; therefore, it seems likely that very little was taught in this area.

With the coming of the depression years of 1929-1937 many new problems were added to the already overworked rural schools. A new influx of children started to school; this meant a heavier load on the taxpayers to educate this new crop of children. In some places the schools had to close their doors for lack of funds. The children who were left without a school had to go elsewhere for their elementary education. The money that was available for the operation of the school would not reach all the needs of all the

students.

Not only were hardships passed upon the taxpayers and students but upon the teachers as well. Low salaries were state-wide; living and travel conditions were very poor in some sections. The teacher was expected to do without needed materials and facilities.

Due to the low requirements which applicants needed to teach in the rural schools at this time, many unqualified teachers were hired. This was especially true in regard to the training of the teacher in the field of health and physical education. There were no state laws requiring that would-be-teachers take any courses in health and physical education.

There was one bright spot, however, in the depression years and that was the rural electrification that was started at that time. In many rural schools electric lights were brought into being through state and federal funds. How many pairs of eyes this saved will never be known. It was one of the biggest improvements in rural schools in the last forty years.

During the period of World War II a great deal of progress was made in the secondary schools in the fields of health and physical education. This progress can be attributed in part to the nationwide conditioning program in which the armed forces took an active part. This conditioning program did not affect the rural elementary schools. Two impor-

tant reasons why conditioning programs did not extend down into the elementary schools were:

1. Lack of trained teachers.
2. Jobs that paid better than teaching took the teachers from the schools into other lines of work.

The situation did not improve after the war for the same two reasons as stated above. State officials, doctors, and physical education people have in the past few years seen the need for more control over health problems of the school and have enacted laws and made recommendations to meet vital needs.

Rural Schoolhouse Lighting

The need for good lighting conditions for rural schools is vividly explained by exerpts from publications by the State of Iowa Health Department. Dr. Walter L. Bierring stated that:

> Proper school lighting is another phase of environmental sanitation which should be included in a public health program. We are cognizant that poor illumination in the classroom may cause eye fatigue and ultimately require glasses, failure of students, nervousness, and general inefficiency of both teacher and pupil.[1]

Jessie M. Parker has the following to say about schoolhouse lighting:

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[1]Dr. Walter L. Bierring, Rural Schoolhouse Lighting (Des Moines, Iowa: State Department of Public Instruction and Health), pp. 3-4. (n. d.).

Good lighting in a schoolhouse is vital. Education involves the putting and the keeping of the body in condition to do the work it needs to do. School work necessarily requires much use of the eyes. Comfortable seeing conditions must be provided in the 8,157 rural schools of Iowa.

With the coming of rural electrification, some directions as to proper arrangements, required candle power of lighting and proper selection of fixtures will be useful to all directors. Already 2,252 schools have electric lights.[1]

Natural lighting during the school period may be classed as sunshiny or bright days, cloudy days and dark days. On bright days blinds have to be drawn in order to eliminate the shafts of direct sunlight, but all too frequently this produces a level of illumination that is too low in some parts of the room. On cloudy days the seeing conditions in the normally poorly lighted areas of the room become worse, and on dark days teachers have been known to change from close work, especially on winter afternoons, to some type of occupational exercise or storytelling on account of inadequate light levels.[2]

School lighting should be considered in terms of both quantity and quality. There are many factors and conditions which affect both the quantity and the quality of lighting. One common and serious fault relative to quality of lighting is glare, especially harmful to sight when reflected from glazed paper, glossy desk tops, or shiny blackboards. The Manual on Rural Schoolhouse Lighting defines it as, "Glare is nothing more than light out of place."[3]

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[1]Jessie M. Parker, The Manual on Rural Schoolhouse Lighting (Des Moines, Iowa: State Department of Public Instruction and Health), p. 4. (n. d.).

[2]Ibid., pp. 17-18.

[3]Ibid., p. 11.

The design of the schoolroom will have some effect upon the amount of light that illuminates the work area of the children.

> The ceiling height should be about 12 feet. A better rule of the thumb is to make the ceiling not less than one-half the room width. In order to get the best distribution of natural light the top of the window glass should be as near to the ceiling as possible.
>
> Realizing that the great majority of children write with the right hand, the windows should be placed on the left in order to prevent shadows on their work while they are writing.[1]

Correct artificial lighting is, of course, just as important or more so than natural lighting and much attention must be given to it.

> Correct artificial lighting is the proper combination of quantity with quality for the particular visual task. Foot-candle for foot-candle, one can see just as well with natural daylight or the light from fluorescent lamps as with the light from filament lamps. But the color quality of the light from the fluorescent lamps, particularly of the daylight type, does not seem to give the feeling of as high a brightness as does the light from filament lamps. One sees as well but the room does not seem as bright.
>
> The border line for conservative and rational lighting recommendations is that of 8 to 10 foot-candles should be provided for reading excellent printing with 10 point type, 15 to 20 foot-candles for 6 point type, and 20 to 25 foot-candles for one's own handwriting in pencil.[2]

> To get the best results, units should be mounted with respect to the distance from the ceiling. This dimension is usually fixed for a given type of unit by the manufacturer in order to conform to the combined characteristics that have been built into the fixture.[3]

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[1] Ibid., p. 14.

[2] Ibid., pp. 17-18.

[3] Ibid., pp. 18-19.

For safety's sake wiring must be considered. Adequate wiring is of utmost importance. The load must not exceed the intake possibilities of the unit in use.

Water Supplies

The source of a school water supply should be considered of vital importance. Wells should be constructed to meet rigid specifications of public health agencies. The source of a school water supply should be approved by the local or state department of health to insure that the children are getting good water. Dr. Walter L. Bierring made the following statement:

> Drinking water supplies have long been recognized as potential sources of illness. Past experience with widespread water-borne epidemics from public and semi-public water supplies behooves us to give particular attention to public school water supplies because of the large number of children who may be exposed by such an outbreak.
>
> Laboratory analysis of samples of water from school wells and private wells submitted to the State Hygienic Laboratory have indicated undesirable contamination in a vast majority of cases. Subsequent inspections, in many cases, have revealed that only minor reconstruction was necessary to provide adequate protection.[1]

Jessie M. Parker made the following statement about drinking water:

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[1]State Department of Health, Sanitary Standards for School Water Supplies (Des Moines, Iowa: State Department of Health), p. 3. (n. d.).

> An adequate supply of water, safely drinkable, is of much importance to every one of Iowa's schools. The physical well-being of both teacher and pupil is involved.[1]

If a well is used, it should be so located, constructed, and maintained that it is not in danger of pollution from nearby privies, cesspools, and sewers. It should be constructed on high ground to prevent pollution from surface or underground drains. To protect the well from taking surface water a good covering should be placed over the opening.

> Well platforms or curbings, and manhole covers, should be of permanent materials, such as reinforced concrete, steel, wrought iron, or cast iron. Wood should never be used even for manhole covers.[2]

> Well platforms should be a water-tight reinforced concrete slab of minimum thickness of four inches, with all openings constructed with raised shoulders to exclude all waste water or other pollution. A sufficient amount of rich cement mortar should be used in sealing the well platform to the sidewalls to insure it being water-tight.[3]

Most type pumps are satisfactory equipment if they are sanitary and sealed so no water may run back down into the well. The well may be equipped with an automatic pump and pressure water storage tank. This will give a water supply within the school building and drinking fountains may be used.

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[1] Ibid., p. 3.

[2] Ibid., p. 7.

[3] Ibid., p. 15.

After a well has been repaired or cleaned it should be disinfected. Many times impure materials will fall into the well or workman's tools will carry impurities. Any school water supply which is of doubtful quality should be boiled or chlorinated.

Sanitary water containers and dispensers are a must for the school. Dispensers should be of impervious materials such as china, porcelain, enameled cast iron, glass, or stoneware. Common drinking cups should be prohibited. Open containers or pails are prohibited by the state law.

Sewage Disposal

In most cases the toilets of the rural schools are of the pit type; therefore, the writer will deal only with them. In general, the construction should be located at least fifty feet from the well. It should be of such capacity that it would take care of the needs of the students for many years without being moved. Bacteria break down the complex organic matter into more or less inert material. It is essential that the privy be designed and constructed so that the pit can be maintained fly tight and rodent proof. All privies should have vents.

In all cases vents are screened. Galvanized steel wire screen dipped in paint, copper screens, and bronze screens are used. Hardware cloth is used

> to cover the outside entrance to vents to prevent entrance of large objects which would clog the vent.[1]

The privy should be disinfected with some strong approved solution that will prevent health hazards to the children. Outdoor toilets, at their best, are often the cause of poor health habits by students because they defer using them to their own physical detriment.

> It is recommended that the outside privy be disinfected as often as possible, once a month is not too often.[2]

Heating and Ventilation

There are many different type heating units within our schools today. The selection of the proper heating units and the installation of these units are very important jobs of the school board.

> The physiological effects of heating and ventilation are not thoroughly understood and it is therefore difficult to set up definite heating and ventilating rules based upon the criterion of physiological effect. It is safe to say, however, that subjecting the human to air too hot or too cold, too moist or too dry, air which is stagnant or dirty, is not conducive to good health.
>
> Clinical records indicate that comfort to the average individual is as reliable a guide to healthful ventilation and heating as is available in light of present day knowledge.[3]

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[1] U. S. Public Health Service, Individual Sewage Disposal Systems (Washington, D. C.: United States Public Health Service, 1946), p. 26.

[2] Ibid., p. 20.

[3] Iowa School Sanitation Manual, Heating and Ventilation Requirements for Rural Schools (Des Moines, Iowa: State Department of Health), p. 4. (n. d.).

Jessie M. Parker stated that adequate heating and ventilation are a part of good health.

> Adequate ventilation and heating tends to insure health and comfort of the pupils and teachers. Adequate heating systems last much longer and are therefore a matter of economy.[1]

The general regulations for heating were stated as follows:

> The heating plant shall be of sufficient capacity to maintain a uniform temperature of 70 degrees at desk level in all occupied portions of the school at all times when the school is in session.
>
> Basement warm air furnaces and ventilation room heaters (oil or coal) installed according to the regulations of the state are approved. Pipeless furnaces are not approved.
>
> Installation of Heaters.--the heater should be located in that portion of the schoolroom most exposed to cold weather. It should be as close to the chimney as possible.
>
> The casing shall completely surround all prime heating surface and no part of the radiation surface shall project through the casing unless some form of insulation or shield is provided.[2]

A healthful school environment and a hygienic arrangement of the school day provides a means of teaching health indirectly. Good sanitation in the schools will also contribute to sound sanitary habits of the school children. These good conditions must, of course, be coupled with good instruction in order to secure best results. Pupils gain either high or low standards of healthful habits from their experience in schools. Poor sanitation contradicts and invalidates the teaching of sanitary principles.

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[1] Ibid., p. 5. [2] Ibid., p. 19.

To what extent have the rural elementary schools in Iowa provided for adequate school health service, healthful school environment, and trained personnel in 1951? The following chapters will attempt to state the problems as they now exist in these schools and present data which will clarify existing conditions for the purpose of further study.

CHAPTER III

PRESENT DAY PROBLEMS

There are many problems in connection with the rural elementary school that confront present administrators, teachers, and other interested people. The problems seem, at times, to be never ending. Among them stands foremost the problem of supplying, equipping, and maintaining the facilities.

The job of purchasing and putting these facilities to good use is of utmost importance. The selection and construction of the right type of facilities to aid the youth of rural schools in growing into healthy individuals is of paramount importance. Not only must the physical health of the individual be regarded but the formation and provision for a happy well-rounded life on the part of the child within the school.

> The new philosophy of education, as interpreted by its objectives, finds for health a prominent position in the school program. Health is too important to be trusted to individual or family initiative. Education realized that whatever other objectives are accepted, health aids in progress towards them, without health the individual is less

useful than he might have been and is handicapped in everything he does.[1]

The task of reconstruction and rebuilding to meet the present needs of rural schools is one with many barriers. Among these barriers, the most outstanding seems to be the high cost of materials and supplies. Another problem facing the rural school is the amount of available space per child.

> The facilities, equipment, and available space affect the type of program and the activities included in the curriculum perhaps to a greater extent than any other factors with the possible exception of sufficient teachers to conduct the program. Without either indoor or outdoor space it is practically impossible for a school to maintain a desirable program of physical education. The same is true in the case of equipment. In modern sports type of program there must be a reasonable amount of equipment; otherwise activities cannot be maintained. The amount and kinds of equipment are determined by the type of program, the activities offered in the curriculum, and the number of pupils to be cared for. In many schools there is insufficient equipment for the greatest efficiency in learning and practice.[2]

In many of the rural schools the taxes are not enough to provide an educational program to meet the needs of the children. This lack of funds leaves the school without the proper facilities by which it can function at a level that is recommended by the leading educators. In turn, this lack of proper equipment has a direct bearing on the education of the child.

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[1]E. F. Voltmer and A. A. Esslinger, The Organization and Administration of Physical Education (New York: F. S. Crofts and Co., 1947), p. 150.

[2]Irwin, op. cit., p. 57.

In many cases this situation could be changed if the residents of the school districts would vote more money for school use. However, money alone is not enough. Careful planning is also essential. Leading architects and educators should be consulted before any addition is made to the physical plant.

It is a known fact that many of the rural teachers have very little academic training in the regular subject field courses, needless to say of health, sanitation, and physical education. Many teachers do not know what are the correct sanitation precautions to be observed.

> The success of the curriculum in physical education, other conditions being equal, is almost wholly dependent upon the individual staff members. Untrained or poorly trained teachers cannot administer and conduct an efficient and successful program of physical education.
>
> The physical education curriculum in the individual school and community will be determined by the training of the teachers. In a majority of the elementary schools the teaching of physical education is done by the classroom teachers.[1]

Many problems confront the educator and people of a community. One of these problems is that of raising sufficient funds to maintain an adequate plant for education. The local school board is faced with the problem of finding a teacher at the salary it can or will pay. The better trained teachers will go elsewhere in most cases. This leaves the low paying rural school with second best. The question is: Should our

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[1] Ibid., p. 62.

rural schools have to employ poorly trained teachers, while the town and city schools get the better trained ones? This, of course, is not fair to the child who lives in the country.

Teacher load in rural schools, as a rule, is very heavy. Most rural schools will have eight different grades for one teacher. This presents a problem in that as high as thirty-two different classes would have to be held in order to include in the daily curriculum those subjects required by state law. In most cases these "book courses" come first and little is done about the physical education program. This, of course, is not the fault of the teacher in many cases.

To summarize the present situation of the rural school, undue hardships are put upon school districts because of high cost of maintaining and constructing facilities; teachers are not properly prepared; and in many cases, teachers do not know how or what to teach in health, sanitation, and physical education.

CHAPTER IV

PROCEDURE FOR COLLECTING DATA

The need for conclusive evidence on the health and sanitation conditions of the elementary rural schools of Iowa is apparent. The problems arising from these school conditions need careful consideration based upon factual evidence. It was decided, after due inquiry into previous research and study in this area to proceed in the following manner.

It was necessary to make a decision on how much of Iowa was to be covered in the study. It was decided that only the one room elementary rural schools would be used. Since the study was limited to rural elementary schools, the findings and conclusions cannot be applied to schools located within the city limits of any town. Since it would be an almost impossible job to take in all rural elementary schools of Iowa, the writer selected one school from each of the ninety-nine counties. This selection was made at random, taking every third school from each county on the list of rural schools on file with the State Office of Education, Des Moines, Iowa. One more questionnaire was sent to a friend of the writer who teaches in a rural school. This made a total of one hundred questionnaires sent.

The following procedure, having been adopted and approved, was put into being:

1. Survey of literature.
2. Preparation of a questionnaire and letter to accompany it.
3. Compilation of the data from returned questionnaires.
4. Summary and conclusions, or recommendations.

A questionnaire[1] based upon the problems already stated was compiled. The next step was to give it a trial run. This was done by sending twenty copies to rural school teachers for approval. After receiving the returned sample copies, minor changes were made and the final draft was sent to the one hundred rural school teachers who had been selected.

Of the one hundred questionnaires sent out thirty-three, or 33 percent, were returned. The writer then sent a follow-up letter[2] to those not returning the questionnaires. This follow-up procedure brought in an additional thirty-one completed questionnaires which made a total of sixty-four, or 64 percent, questionnaires returned.

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[1] See Appendix, p. 50.

[2] See Appendix, p. 49.

CHAPTER V

PRESENTATION OF DATA

The purpose of this chapter is to present the data found in the questionnaires that were returned to the writer by teachers of rural elementary schools of Iowa. In most cases the tables show the number and percent of types of situations that exist within the schools. In some cases the results will not be shown in table form, but will be written into the chapter.

Data compiled in Table 1 indicate that of the total of sixty-two schools reporting seventeen, or 27.4 percent, had single desks fastened to the floor.[1] It can be noted that two schools, or 3.2 percent, used double desks while nineteen, or 30.6 percent, had adjustable and movable desks. The single desks on runners showed the highest number with twenty-four schools, or 38.8 percent. The total pupils using single desks fastened to the floor was 197, or 22.80 percent, with an average floor space per pupil of 45.5 square feet. The table indicates that only forty-one pupils,

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[1] Of the sixty-four questionnaires returned only sixty-two were usable for this table.

TABLE 1

THE EXTENT TO WHICH 62 RURAL ELEMENTARY SCHOOLS OF IOWA USE DIFFERENT TYPE DESKS, THE NUMBER OF STUDENTS, AND THE AVERAGE FLOOR SPACE PER PUPIL IN DIFFERENT SCHOOLS 1950-1951

Type of Desks	Total Schools		Total Pupils		Average Room Size	Average Floor Space Per Pupil (Sq. Ft.)
	No.	Percent	No.	Percent		
Single, Fastened Down	17	27.4	197	22.8	22x24	45.5
Double	2	3.2	41	4.7	22x24	25.7
Adjustable and Movable	19	30.6	308	35.7	22x24	32.5
Single, on Runners	24	38.8	318	36.8	22x24	39.8
Total	62	100.0	864	100.0		
Average					22x24	35.8

or 4.74 percent, used double desks with an average floor space per pupil of 25.7 square feet. The number of pupils for the adjustable and movable desks was 308 with an average floor space of 39.8 square feet. Again the single type desks lead in the number of pupils with 318, or 36.8 percent, and 39.8 square feet of floor space per pupil.

This would seem to indicate that over 68 percent of the schools had some type of movable desks. It would also indicate that the other 30 percent of the schools were not meeting this requirement of modern education by not having movable desks.

Evidence in Table 2 shows that three schools, or 8.10 percent, had dug wells with a flush type wood cover. One school, or 2.71 percent, had a dug well with a concrete overlap type cover. One school, or 2.71 percent, had a dug well with overlap wood type cover. Five schools, or 13.51 percent, reported that they had dug wells with concrete flush cover. One school, or 2.71 percent, had a drilled well with flush type wood cover. Five schools, or 13.51 percent, had drilled wells with concrete overlap type covers. No schools with drilled wells reported wood overlap type covers. Four schools, or 10.81 percent, of those having drilled wells, reported the concrete flush type cover.

The largest number reported that they carried their water from a nearby farm. Of these four, or 10.81 percent,

TABLE 2

THE TYPE OF WELL 58 ELEMENTARY RURAL SCHOOLS OF IOWA USE AND THE TYPE OF COVER SEALING THE WELL, 1950-1951

Type of Water Supply	Wood Cover Flush		Concrete Cover Overlap		Wood Cover Overlap		Concrete Cover Flush	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Dug	3	8.10	1	2.71	1	2.71	5	13.51
Drilled	1	2.71	5	13.51	0	0.00	4	10.81
Piped in	0	0.00	0	0.00	0	0.00	1	2.71
Carry from Farm	4	10.81	8	21.62	0	0.00	4	10.81
Totals	8	21.62	14	37.84	1	2.71	14	37.84

had flush type wood covers. Eight, or 21.62 percent, had concrete overlap type covers, while four, or 10.81 percent, had concrete flush type covers. It is interesting to note that twenty-four schools reported that they did not know from what type well they obtained their water. In all cases these schools carried their water from a nearby farm or house. A total of 21.62 percent of the schools reported that the wells from which they receive their water had wood flush covers; 37.84 percent had concrete overlap type; 2.71 percent had wood overlap type; and 37.84 percent had concrete flush covers.

These data indicate that over half of the teachers do not know the type of well covering used or from where they get their water supply. It also shows that over 20 percent of the wells had wood type covers which are not recommended by the state. Fifty-eight returns were usable in this table.

Table 3 is a presentation of data concerning the type of drinking facilities for the different kinds of wells. In the schools where dug wells were in use, three, or 4.93 percent, had pressure fountains; one, or 1.55 percent, had a faucet with one drinking cup for the whole school; four, or 6.54 percent, had faucets with individual cups; two, or 3.27 percent, reported other type drinking facilities.

TABLE 3

THE TYPE DRINKING FACILITIES OF 61 RURAL ELEMENTARY SCHOOLS OF IOWA AND THE TYPE OF WELL CONSTRUCTION, 1950-1951

Type of Water Supply	Pressure Fountains		Faucet One Cup		Faucet Individual Cup		Bucket Dipper (one)		Bucket Individual Cups		Other	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Dug	3	4.93	1	1.55	4	6.54	0	0.00	2	3.27	3	4.93
Drilled	3	4.93	0	0.00	5	8.19	0	0.00	2	3.27	0	0.00
Piped in	1	1.55	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Carry from Farm	2	3.27	1	1.55	31	50.81	1	1.55	2	3.27	0	0.00
Total	9	14.68	2	3.10	40	65.54	1	1.55	6	9.81	3	4.93

Of the schools reporting drilled wells, three, or 4.93 percent, had pressure fountains, none had faucets with one cup, five, or 8.19 percent, had faucets with individual cups, and none reported other types. Only one school reported piped in water. This school had a pressure type fountain. In the schools where the water was carried from the nearest farm or house, two, or 3.27 percent, used pressure fountains; one, or 1.55 percent, had a faucet with one cup; thirty-one, or 50.81 percent, reported faucet with individual cups; one, or 1.55 percent, used a bucket with one dipper; two, or 3.27 percent, had a bucket with individual cups.

The totals of the table show that nine, or 14.68 percent, had pressure fountains; two, or 3.10 percent, had faucet with one cup; forty, or 65.65 percent, had faucets with individual cups; one, or 1.55 percent, had a bucket with one dipper; six, or 9.81 percent, had buckets with individual cups; and three, or 4.93 percent, had other types.

The data indicate that over 88 percent of the schools have individual drinking facilities or pressure fountains. Over 10 percent are not living up to the law, by using one cup or dipper for the whole school. Sixty-one returns were usable for this table.

Table 4 indicates the type well in use and the time since it has been tested by the State Department of Health. Of the dug wells one, or 1.61 percent, had been tested in the

TABLE 4

THE TYPE WATER SUPPLY OF 62 RURAL ELEMENTARY SCHOOLS OF IOWA AND THE TIME SINCE IT HAS BEEN TESTED, 1950-1951

Type of Water Supply	Three Months		Six Months		One Year		More Than One Year		Do Not Know	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Dug	0	0.00	1	1.61	0	0.00	5	9.06	6	9.67
Drilled	1	1.61	4	6.45	1	1.61	1	1.61	4	6.45
Piped in	0	0.00	1	1.61	0	0.00	0	0.00	0	0.00
Carry from Farm	2	3.22	5	8.06	1	1.61	5	8.06	25	40.32
Total	3	4.83	11	17.74	2	3.22	11	17.74	35	56.45

last six months; five, or 8.06 percent, reported more than a year, while six, or 9.67 percent, did not know when they had been tested. Those who had drilled wells reported that one, or 1.61 percent, had been tested within the last three months; four, or 6.45 percent, reported it had been six months; one, or 1.61 percent, indicated it had been a year; one, or 1.61 percent, more than a year; four, or 6.45 percent, said they did not know. Of the piped in systems one, or 1.61 percent, reported it had been six months since it had been checked for purity. In the schools that carried their water from nearby farms two, or 3.22 percent, had the water tested within the last three months; five, or 8.06 percent, within six months; one, or 1.61 percent, one year; five, or 8.06 percent, more than a year, while twenty-five, or 40.32 percent, reported they did not know. It is interesting to note that 56.45 percent of the teachers did not know when, if ever, the water had been tested.

Table 5 shows the different type toilet facilities in the schools and the number of students that use each type of such facility. One school, or 1.61 percent, had a flush type with forty-eight students using it. Five, or 8.06 percent, reported the use of chemical type toilets with sixty-seven students using it. Fifty-six schools, or 90.32 percent, used the pit type with 739 students using it.

TABLE 5

TYPE TOILET FACILITIES AND THE NUMBER OF STUDENTS USING EACH IN 62 RURAL ELEMENTARY SCHOOLS OF IOWA, 1950-1951

Type of Toilet	Total Number of Schools		Total Number of Students	
	No.	Percent	No.	Percent
Flush type	1	1.61	48	5.62
Chemical	5	8.06	67	7.84
Pit type	56	90.32	739	86.53
Total	62	100.00	854	100.00

It was also asked of each teacher how frequently the school toilet was disinfected. This included only the pit type. "Never" was reported in 23.2 percent of the cases; 55.3 percent did not know; 19.4 percent, once a year; 5.3 percent, once in two years; and 5.3 percent reported it was done weekly.

Table 6 indicates the type of lighting used, average wattage, average lamp units per school, and average number of windows per school. One, or 1.69 percent, reported the use of kerosene lamps; fifty-eight, or 98.31 percent, reported electric lights with an average wattage of 463.87, and an average number of 3.9 lamps per school. The average windows per school were reported to be 8.63. The average floor space of the schools was 528 square feet with an average light wattage of 463. The average number of lamps per school

was just under four. The data show that the average school had about one-half enough wattage as recommended by leading authorities. Only fifty-nine reports were usable for this table.

TABLE 6

THE LIGHTING FACILITIES IN 59 RURAL ELEMENTARY SCHOOLS OF IOWA, 1950-1951

Type of Lighting	Total Schools		Average Wattage	Average Lamp	Average Windows
	No.	Percent	No.	No.	No.
Kerosene Lamp	1	1.69	0	1	8
Electric Units	58	98.31	463	3.91	8.63
Total or Average	59	100.00	463		8.63

Table 7 shows the type heating systems within the different schools. It also indicates the schools which use coal, wood, and oil heaters and if these heaters have jackets around them. Twenty-five, or 40.98 percent, reported coal furnaces; six, or 9.83 percent, oil furnaces; nineteen, or 31.14 percent, oil heaters with eleven, or 57.89 percent, with jackets; and eleven, or 18.03 percent, wood or coal heaters with seven, or 63.63 percent, with jackets. The total percent shows that only 60 percent of the coal, oil, and wood heaters have jackets around them. The data in

Table 7 would indicate a need for the inspection and control of those schools which have oil, wood, and coal heaters without protecting jackets.

TABLE 7

THE TYPE HEATING UNIT AND THE NUMBER WITH PROTECTIVE JACKETS AROUND COAL, OIL, AND WOOD HEATERS IN THE RURAL ELEMENTARY SCHOOLS OF IOWA, 1950-1951

Type of Heating Unit	Total Schools		Jackets around Heating Unit	
	No.	Percent	No.	Percent
Furnace Coal	25	40.98		
Furnace Oil	6	9.83		
Heater Oil	19	31.14	11	57.89
Heater Wood or Coal	11	18.03	7	63.63
Total	61	100.00	18	60.00

Data compiled in Table 8 indicate that one school, or 1.67 percent, has single periods for all children in physical education of fifteen minutes duration, while eleven, or 18.63 percent, have a thirty minute program; thirty-nine, or 52.54 percent, have a sixty minute single program; seven, or 11.86 percent, have no regular program; and two, or 3.38 percent, have no program at all per week. This table also indicates that one, or 1.67 percent, of the schools have a separate physical education program for boys and girls and different age groups, of fifteen minutes per week; one, or

TABLE 8

THE TYPE PHYSICAL EDUCATION PROGRAM AND THE AMOUNT OF TIME SPENT PER SCHOOL WEEK ON SINGLE AND SEPARATE INSTRUCTION IN 59 ELEMENTARY SCHOOLS OF IOWA, 1950-1951

Physical Education Program	Fifteen Minute Program		Thirty Minute Program		Sixty Minute Program		No Regular Program		No Program	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Single Period Program	1	1.67	11	18.63	31	52.54	7	11.86	2	3.38
Separate Period Program for Different Age and Sex	1	1.67	1	1.67	2	3.38	3	5.08	0	0.00
Total	2	3.34	12	20.30	33	55.92	10	16.94	2	3.38

1.67 percent, have a thirty minute program per week with different age and sex groups; two, or 3.38 percent, have a sixty minute weekly program of different age and sex groups; and three, or 5.08 percent, have no regular program.

The data presented in Table 8 show that over 39 percent of the schools are giving under the fifty minute physical education program per week as prescribed by the state law. Fifty-nine reports were usable for Table 8.

TABLE 9

THE EXTENT OF 48 TEACHERS TRAINING IN COLLEGE HOURS PER TEACHER AND COLLEGE HOURS OF PHYSICAL EDUCATION IN RURAL ELEMENTARY SCHOOLS OF IOWA, 1950-1951

Teacher Training	Total Teachers	Average Hours	Average Hours in Physical Education
Total Schools	48	25.4	2.45

Table 9 indicates the number of teachers in the rural elementary schools and the amount of college training of each teacher. This is given in average total college hours per teacher. The average hours in physical education training has also been computed in this table. It is interesting to note that three had no college training at all, twenty-one with no physical education training, and only one had a degree from a college. The average college hours per teacher is indicated as 25.4 with 2.45 hours per teacher

in physical education and health. This would seem to indicate a real need for more training of personnel in this field.

These data clearly show that many teachers in Iowa's rural schools lack the formal training for the positions they hold.

TABLE 10

THE NUMBER AND PERCENT OF 62 RURAL ELEMENTARY SCHOOLS OF IOWA GIVING PHYSICAL EXAMINATIONS AT THE BEGINNING AND DURING THE SCHOOL YEAR 1950-1951

	Beginning of School Year		During School Year		Not Given	
	No.	Percent	No.	Percent	No.	Percent
Physical Examination	4	6.45	6	9.67	52	83.87

Evidence tabulated in Table 10 shows a majority of the rural schools require no physical examination of the students. Only four, or 6.45 percent, made an examination at the beginning of the year; six, or 9.67 percent, conducted them during the year; and fifty-two, or 83.87 percent, required none. This 83.87 percent of the schools not giving physical examinations would indicate a need, on the part of school leaders of Iowa, to make some sort of state provisions to meet this health need.

TABLE 11

WHERE STUDENTS EAT THEIR LUNCH IN 60 RURAL ELEMENTARY SCHOOLS OF IOWA, 1950-1951

Where Students Eat	Total Schools	
	No.	Percent
Desk	53	88.33
Special Table	4	6.67
Other	3	5.00

Table 11 shows where the students eat their lunch. Fifty-three, or 88.33 percent, use the regular school desks; four, or 6.67 percent, had special tables while three, or 5.00 percent, reported other means. Only 6.67 percent of the schools have special tables where the children eat their lunch. This would seem to indicate a need for the other schools to install special tables which will make it more sanitary and healthful for the students. Of the sixty-four returns, sixty could be used in this table.

It is interesting to note other information received which was not put into table form. Among some of the facts are the following: seventy-four percent reported that no barbed-wire enclosed their playground; 17.7 percent had barbed-wire, while 8.0 percent gave no answer.

The answer to the question, "Does your county have a school health nurse?" resulted in 46 percent "yes," 46 percent "no," and 8 percent who stated they did not know. Of

those schools having a county health nurse 34 percent said that this nurse visited their school very seldom; 31 percent, once a year; 3 percent, once in two years; 20 percent, twice a year; and 10 percent stated that she never did.

Only 8 percent reported that they had at least one hot dish at noon. Of the 8 percent, this dish was usually brought by one of the students.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

From the compiled data found in this study certain conclusions become evident. It was indicated that over 30 percent of the schools still use other than adjustable and movable desks. The average room size is 22 by 24 feet with an average floor space per pupil of 35.8 square feet. This seems to be enough floor space per pupil.

Forty percent of the schools get their water from other than their own wells. Two and seventy-one hundredths percent of the wells had wood covers which is not within the recommendations of the State Health Service.

Over 10 percent of the schools use one drinking cup for the whole student body. This is not within the limits of the state law. Fifty-six percent of the teachers did not know when the water had been tested, if at all. Seventeen and seventy-four hundredths percent stated that the water had not been tested for more than a year. This would seem to indicate a need for better and stricter enforcement of existing laws.

Safety is not being carried out in many schools

where coal, wood, and oil heaters are used. This is indicated by the data in Table 7, page 39, which show that 40 percent of these schools do not have jackets around their heaters.

Teacher training, on the average, is less than two college years with just over two hours in physical education. This leads the writer to believe that teaching in rural elementary schools is not on the same plane as in the city and town elementary schools.

The physical well-being of the students is not being cared for in a proper manner. Only 16 percent of the schools reported a physical examination given sometime within the school year.

Only 6.66 percent of the schools have special tables where students may eat their lunch; therefore, it is concluded that there is more danger of spreading disease.

The evidence found in this study leads the writer to make several recommendations:

1. That all rural elementary schools have a yearly inspection of facilities to ward off the spread of contagious diseases and to insure the health and safety of the students. This should include the inspection of the well or water supply, toilet facilities, lighting, heating, and playgrounds.

2. That outside privies be disinfected as often as possible; once a month is not too often.

3. That teacher salaries be raised in order to bring better teachers into the rural schools.

4. That teachers of rural schools have more college training before they are permitted to teach. With the average college hours per teacher of only twenty-five, it would seem advisable to make laws that would take care of this situation.

APPENDIX

Letter Sent to Iowa Rural Teachers

Dear Teacher:

As a requirement for the Master of Science Degree in Education at Drake University, I have elected to make a study of the health and sanitation conditions of the rural schools of Iowa.

In order to make a sound study of the subject it is important that I receive the information from your school that is listed on the questionnaire.

In compiling the final data, no reference will be made to any one particular teacher or school.

Enclosed you will find a self-addressed stamped envelope in which you can return the completed questionnaire. Your prompt attention will be greatly appreciated.

Respectfully yours,

Ralph L. Carroll

PHYSICAL PLANT

1. What is the size of school building in feet?

_____length_____width

2. How many students enrolled?_____number

3. What type desks?

_____Single, fastened to floor
_____Double, fastened to floor
_____Adjustable and movable
_____Other, Explain_____
_____

4. What type water supply?

_____Dug well
_____Drilled well
_____Piped into school room (running water)
_____Carry from nearest farm

5. Check type cover on dug well

6. What type drinking facilities?

_____Pressure fountain
_____Faucet with one drinking cup
_____Faucet with individual drinking cups
_____Bucket with dipper (one dipper for whole school)
_____Bucket with individual cups
_____Other, explain

7. How long has it been since the water was tested by the State Department of Health?

_____Three months or less
_____Six months
_____One year
_____More than a year
_____Don't know

8. What toilet facilities?

_____Flush type
_____Chemical
_____Pit type (outside)

9. If your toilet is pit type (outside) how frequently is it disinfected?

10. Who does the janitor work?

_____Teacher
_____Student
_____School board member
_____Janitor employed (other than above)

11. What type lighting system?

_____Kerosene lamp
_____Electric lights
direct lighting
indirect lighting
fluorescent lighting
_____Gas lights

12. How many light/lamp units are in the school room?

_____

13. What is the total wattage? (Size of electric bulbs multiplied by number of bulbs)

_____

14. How many windows in the school building?

_____large _____small

15. What type heating system?

_____Furnace
_____Coal
_____Coal stoker
_____Oil
_____Gas
_____Oil Heater
_____Wood or coal heater

Is there a jacket around the heater?_____Yes_____No

HEALTH AND PHYSICAL EDUCATION

1. How much time do you spend per week on physical education?

_____15 minutes
_____30 minutes
_____60 minutes
_____no regular program
_____none

2. Do all children take part in a single physical education program?
_____Yes _____No

3. Are all children given a physical examination at the beginning of the school year?
_____Yes _____No

During the year?
_____Yes _____No

4. How many hours of college work have you had in health and physical education?_____

Total hours of college work_____semester_____quarter

5. Where do the students eat their lunch?

_____Desk
_____Special table
_____Other, explain_____

6. Do you have at least one hot dish at lunch?

_____Yes _____No

7. Is there any barb-wire fencing that boarders the playground?
_____Yes _____No

8. Does your county have a county nurse?
_____Yes _____No

If so, how often does she visit your school_____

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